

TORNADO  
600

100  
Anniversary  
1911 Benelli 2011



*Owner's Manual*

TORNA DO  
600

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OWNER'S MANUAL 2013

Y O R N A D O  
600

*100<sup>th</sup>*  
*Anniversary*  
1911 **Benelli** 2011



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## **PREFACE**

Thanks for choosing TNT600 EFI two-wheeled motorcycle, which is combined with the national and international advanced technologies and would bring you a happy and safe riding experience.

Motorcycle driving is one of the most exciting sports events. Please fully understand and abide by the rules and requirements stated in this manual before driving.

This instruction manual covers the maintenance procedures, which would ensures the maximum performances and highest durability of your motorcycle service.

Benelli is equipped with professional technical service personnel and department, which is able to provide you with highest quality technical services.

Insisting in the principle of “customer first”, Benelli makes great efforts to develop the products quality and performances so that the appearances and structures are always being innovated with advance structure.

The picture information in this Manual is only for references, the actual style may differ.



## IMPORTANT NOTES

1. Rider and passenger capacity.  
This motorcycle is designed only for two riders.
2. Road surface for riding.  
This motorcycle is suitable for highway riding.
3. Please carefully read this user manual. Careful and proper riding running-in will ensure the stable and smooth running of your motorcycle.

Please pay special attention on the following:-



**Note** : This is for the maintenance or more important events explanations.



**Caution** : This is for the operating specifications of the motorcycle.



**Warning** : This is for the important procedures that may endanger safety of the rider or would bring injuries if ignored.

The User Instruction should be considered as a permanent manual for the motorcycle. Please give it to the new owner if you transfer the motorcycle.

No copy or reproduction of any part in this manual without written approval from Benelli.



## SPECIAL ATTENTION



The motorcycle must be equipped with a specify fuse only to avoid any serious damage or accident.

- Fuse compartment is next to the storage battery.
- Fuse specification: 20A for main power source fuse and 15A for ECU system fuse.
- Burnt fuse is generally caused by a fault in the electrical circuit of the motorcycle. It is recommended to send the motorcycle to our Authorised Service Center to have it check and repair.



Always ensure the positive and negative lead of the battery are properly install. (Never install in reverse order). When reversely installed please check the condition of the fuse.  
Before replace the fuse, please turn the key to "⊗" to prevent the short circuit.



## **SAFETY NOTES**

### **SAFETY RIDING RULES**

1. Have a complete inspection before starting the engine so as to prevent possible accidents or damages of spare parts.
2. Never lend it to any people without a driving license.
3. To avoid damages by other motor vehicles, the rider shall try his/her best to be visible at all time. Including:
  - a) Wearing bright clothes;
  - b) Keeping away from other motor vehicles;
4. Obey the traffic rules strictly and do not jump queues;
5. Speeding is one the key reasons of the accidents. So keep the speed within the limit.
6. Turn on the signal lamp so as to be noticed by others when tuning the corner or changing a drive lane.
7. Ride carefully on a crossway, passageway of a parking lot and on highway.
8. Any modification disassembly of the spare parts would affect the safety driving and maintenance.
9. The installation of the accessories shall not affect the safety driving and operation performances of the motorcycle. The overloading of the electrical systems would easily cause damage.





## **PROTECTIVE CLOTHES**

1. In order to assure personal safety, the rider should wear protective helmet, protective glasses, driving boots, gloves and protective clothes. The passenger should also wear the protective helmet.
2. The exhaust system will be hot during running and still be hot for a while after the engine is stopped. Never touch the exhaust system when it is hot. Please wear the clothes that can fully cover your feet.
3. Please do not wear loose clothes that may be trapped by the control lever, foot pedal starting equipment, pedals or wheels during driving.

## **PROTECTIVE HELMETS**

Protective helmet that conforms to the safety quality standard is the primary protective gear in driving. The most serious accident is head injury. Please wear protective helmet and protective glasses as well.

## **NOTES FOR RIDING IN RAINY DAYS**

Pay special attention in rainy days as the road is wet and the brake distance is two times as of the clear days. Avoid the signs for paints, manhole cover and greasy dirty grounds. Be careful of railway crossing, railings and bridges. Slow down when the road condition is not clear.



## SERIAL NUMBER

Vehicle Identification Number and the Serial Number are used for the registration of the motorcycle, including all necessary back up service.

Remember the numbers for the possible uses in the future.

1. The frame number is printed in the right side of head tube
2. Product nameplate is riveted on the head tube.
3. The engine number is printed on lower part of the right case of engine crank case.



Please write down the numbers for your references;

**VEHICLE IDENTIFICATIONS NUMBER (VIN):**

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**ENGINE NUMBER:**

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--



## CONFIGURATION OF PARTS

### BODY PARTS



1. Clutch Lever Left
2. Left Handle Switch
3. Clutch Lever
4. Fuel Tank Lock
5. Meter

6. Right Handle Switch
7. Right Side Mirror
8. Front Brake Lever
9. Throttle
10. Fuel Tank

# TURNER 600



1. Rear Brake
2. Rear Foot Pedal
3. Front Foot Pedal
4. Rear Brake Pedal

5. Fuel Oil Observation Hole Side Stand
6. Front Brake

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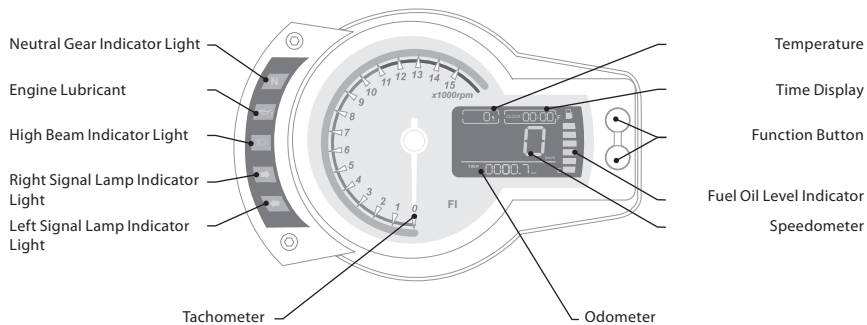


1. Front Brake
2. Gear Shift Pedal Lever
3. Front Foot Pedal
4. Side Stand

5. Rear Foot Pedal



## METER PANEL





**1. Left signal lamp indicator light**

When the turn signal lamp is turning left, the left steering lamp indicator light will flash.

**2. Right signal lamp indicator light**

When the turn signal lamp is turning right, the right signal lamp indicator light will flash.

**3. High beam indicator light**

When the head lamp high beam is on, the high beam indicator light will be on.

**4. Engine lubricant**

**5. Neutral gear indicator light**

When the transmission is on neutral position, the neutral gear indicator light will be on.

**6. Function button**

**7. Tachometer**

Tachometer indicates the revolution of engine.

**8. Temperature**

**9. Speedometer**

Speedometer indicates the driving speed, km/hour.

**10. Time display**

**11. Fuel oil level indicator**

**12. Odometer**

TRIP or ODO function on the odometer can be chosen as required.

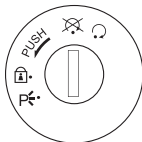
TRIP: An odometer than can be zero cleared, recording the driving mileage within a period. On the state of TRIP, please press ADJUST button three times to clear.

ODO: recording all the driving mileage, measured in km. Odometer keeps records of the driving mileages in kilometers.



## OPERATION PROCEDURES

### POWER LOCK



When the key turns to "OFF" position, the power gets through and the engine starts to run. The key can not be taken out.

When the key turns to "OFF" position, the power cuts off, and the engine can not run. The key can be taken out.

(Park) position: when the vehicle parks at roadside at night, the key turns to "P" position, the key can be taken out now, the rear lamp (parking lamp) will be kept on.

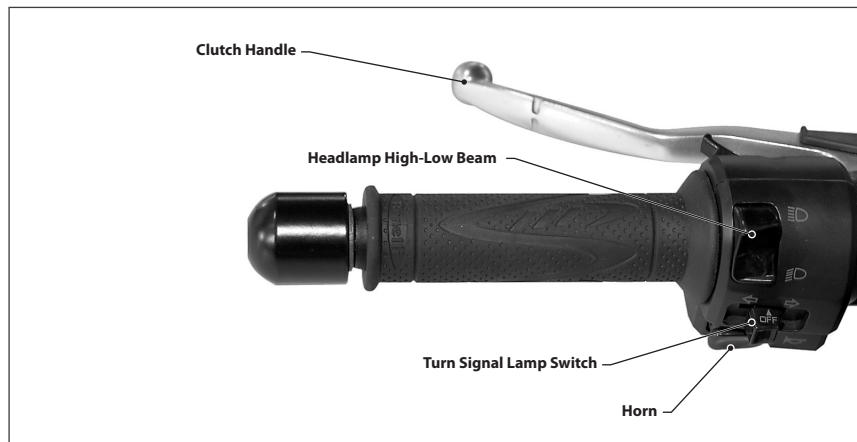
(Lock) position: turn the key counter-clockwise to "L" position, the lock will extend out the lock core to lock.



Lock the turn direction and take out the key to prevent from being stolen. Turn and confirm the lock. Do not park in the place holding up the traffic.



## LEFT HANDLE





### **Clutch handle**

When starting the engine or shifting the gear, operate the clutch handle to cut off the driving of rear wheel.

### **Horn button**

Pressing the horn button, the horn will make sound.

### **Headlamp high-low beams switch**

Press the headlamp high -low beams switch to position, the headlamp high beam will be on and high beam indicator light in the instrument panel lights up too;  
Press the switch to " "position, the headlamp low beam will be on. Use low beam light when driving in the downtown or in front of vehicles so as not to influence the vision of other people.

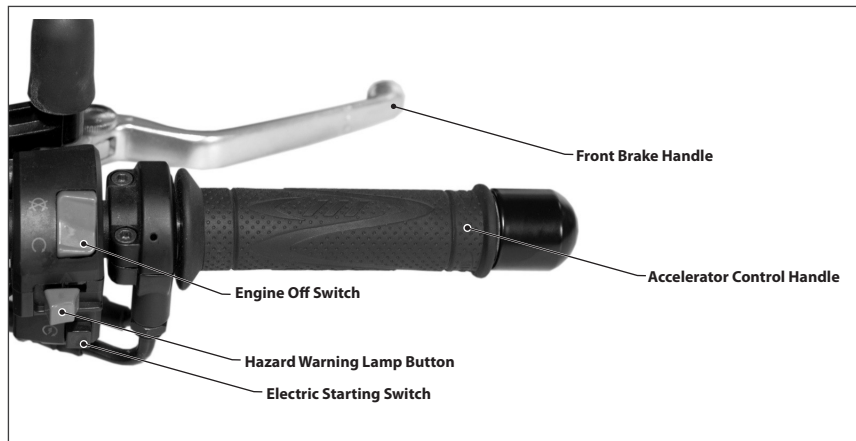
### **Turn signal lamp switch**

Press the left turn signal lamp switch , the left turn signal light will flash. At the same time, the green turn indicator light in the instrument panel will flash too. Turn the turn signal lamp switch to the middle position to cancel the turn signal.



Lighten up the turn signal lamp when making a turn or changing lanes. Turn off the turn signal lamp in time after making a turn so as not to affect the normal driving of other vehicles and avoid accidents.

## RIGHT HANDLE





### **Engine off switch**

When the switch is pressing at position, the power of the complete vehicle will be on and the engine can start.

When the switch is pressing at position the power of the complete vehicle will be cut off and the engine can not start.

### **Hazard warning lamp button**

#### **Electric starting switch**

Press the electric starting switch, the electric motor will run and the engine can start.

#### **Accelerator control handle**

The accelerator control handle is used to control the speed of engine. Turn the handle facing the driver to accelerate, turn the handle reversely to decelerate.

#### **Front brake handle**

Grasp the right brake handle slowly to front brake.



## FUEL TANK

Insert the fuel tank key and turn the key clockwise to open the fuel tank cover, the fuel tank cover can be opened with the key. Guide pin against the fuel tank and then press down to close the fuel tank cover, take it out until the locking sound is heard.



The fuel tank can not be over-filled. Do not spray the fuel onto the hot engine, which may be dangerous. Please stop the engine when filling, and turn the ignition key to " " (off) position. Do not forget to lock the fuel tank cover after filling to prevent the fuel evaporating into the air, which will waste the energy and pollute the environment. No smoking or naked lights when filling. If the fuel overflow and enter into the canister or other parts, please see your authorised Service Center soon to clean or replace the canister, because too much fuel entering into the canister will cause the active carbon be ineffective prematurely. Please check the smoothness of the down nozzle at the fuel tank cover regularly to assure the smooth draining and prevent the external water entering into inner cavity of fuel tank.



### **GEAR SHIFTING PEDAL LEVER**

This motorcycle comes with the constant mesh six-speed non cyclical gear shifting, the operation is shown as in the figure. The neutral position is between the low-speed gear and two-speed gear, step down the gear shifting lever from the neutral position to select the

low-speed gear; use the tiptoe to move the gear shifting pedal upward (or use the heel to step down) to change into the next high gear; use the tiptoe to step the gear shifting lever to change into the next low gear.





## REAR BRAKE PEDAL

Step down the rear brake pedal (as shown in the Figure) to put into gear of rear brake, when operating the rear brake, the brake lamp will be on.





### **SIDE STAND**

The kick stand is located at the left side of the vehicle, please use your foot to shift the stand into proper position when stopping.



Do not put the vehicle at the declinational slope, otherwise the vehicle may overturn.





## **REAR SUSPENSION PRELOAD**

The spring on the rear shock absorber can be adjusted to bear different situations and road conditions as required by the driver. There are five positions for adjustment available. Use the kick stand to support the motorcycle properly and turn the spring adjusting ring to the needed position.





## USAGE INSTRUCTION

### FUEL

It is better to use lead-free fuel or low-lead fuel. The octane value of the fuel should be above 90. If the engine makes slight knocking sound, fuel of common grade may be used, which should be replaced.



When the transmission is on neutral position, the indicator light will be on, the rider should loose the clutch lever slowly to confirm if the transmission is at the neutral position.



Using lead-free fuel or low-lead fuel can extend the service life of the spark plug.



## **ENGINE OIL**

Please use the high clarity and high quality engine oil which conforms to or above SF level. Always insist on recommended fully synthetic motorcycle engine oil.

## **BREAKING IN**

The engine of the new motorcycle shall not be over-run and the RPM speed on any gear shall not exceed 80% of its maximum rotating speed during the first 1,000km driving period; do not operate the throttle when it is fully open; at the same time, change the gear appropriately to prevent the engine being over-pressurized. Careful operation of the new motorcycle during the breaking in period will be greatly useful to extend the service life of the motorcycle.

Special attention:

In the first 500km of breaking in, is important to replace the engine oil and used only recommended fully synthetic motorcycle engine oil as specify.



### CHECK BEFORE RIDING

Please check the following items before driving. The importance of these checks shall not be ignored.

Scope of Checking	Focus of Checking
Handle	1) Stable 2) Revolve smoothly 3) No axial float and loose
Brake	1) proper clearance between the handle and brake pedal 2) no feeling of braking ineffective braking 3) no oil leaking
Wheel	1) proper air pressure 2) proper lug depth 3) no fissure or cut
Fuel Storage	1) Enough fuel storage to drive the planned distance
Light	1) Operate all the lamps-headlamp, rearlamp, brake lamp instrument-panel lamp and steering lamp etc.



Indicator Light	High beam indicator light, gear indicator light, turn signal indicator light
Horn & Brake Switch	Function normally.
Engine Oil	The oil level is proper.
Accelerator	1) Proper accelerator cable clearance 2) Smooth fueling and quick fuel cut-off
Clutch	1) Proper cable wire clearance. 2) Smooth operation.
Driving Chain	1) Proper degree of tightness. 2) Properly lubricating.
Storage Battery Electrolyte	Check the electrolyte level and add the electrolyte as needed.



## DRIVING OF MOTORCYCLE

### STARTING OF ENGINE

Turn the power lock clockwise to the contact of "⊞" position, if the transmission is on neutral position, the neutral position indicator light will be on.



Grasp the clutch handle and start the engine when the transmission is on the neutral position.

Start the engine by electric starting, ECU will provide the fuel necessary to start the engine in accordance with the ambient temperature and the engine condition.



Do not start engine in poorly ventilated places. Do not leave the motorcycle unattended when the engine is on.



Do not over-run the engine when not driving, for it will make the engine overheated and may damage the internal parts of the engine.



## **STARTING**

Grasp the clutch handle for a short moment, then step down the speed shifting lever to put into first gear. Turn the accelerator control handle facing the driver, at the same time, loose the clutch handle slowly and stably, now the motorcycle will move forward.

## **USING GEAR SHIFTING MECHANISM**

The gear shifting mechanism can ensure the stable running of the engine under normal operation range. The rider shall choose the optimum gear shifting under general conditions. The rider should decelerate and make the engine to run within the normal running range.

## **DRIVING ON THE SLOPE**

When climbing steep slope, the motorcycle will begin to decelerate and seem to be underpowered, the rider should change into the lower gear, then the engine can operate within its normal power range. Please shift the gear quickly to prevent the motorcycle to lose speed.

When on downhill, please shift the engine into lower gear for the convenience of braking. Do not make the rotating speed of the engine too high.

## **USING BRAKE AND STOPPING**

Use the front and rear brake evenly at the same time. Lower the gear to slow down.(Apply the engine brake).

Press the clutch lever against the control handle (cut-off position) before the motorcycle stops and shift into neutral position.



The inexperienced rider often uses the rear brake only, which will accelerate the wearing of brake and make the braking distance too long.



Using only the front brake or the rear brake is dangerous, which will cause slid or lose of control. Use the brake carefully and slightly when riding on the wet highroads, slippery road surface and all the roads with a curve. It is very dangerous to use the brake to stop the motorcycle suddenly.

The motorcycle should be placed at solid and flat ground. Do not park the motorcycle at the place which will block the traffic. If the rider has to place the motorcycle at the slope with a kick stand, please put the motorcycle into first gear to prevent skidding and shift the gear back into the neutral position before starting the engine.

Turn the ignition switch to off "~~ON~~" position to stop the engine and take down the ignition key from the switch.





## **INSPECTION AND MAINTENANCE**

The following table is the periodic service interval. After each time limit, inspection, verification, lubricating and stipulated maintenance must be carried out in accordance with the stated instructions. The steering gear system, support and wheel system are key components, which require careful maintenance of specialized technical personnel. For the sake of safety, we recommend you to contact your authorised Service Centre to perform these job.

### **MAINTENANCE SCHEDULE**

**I** - Inspection, cleaning, adjustment, lubricating or replacement

**C** - Cleaning

**R** - Replacement

**A** - Adjustment

**L** - Lubricating



	MAINTENANCE ITEMS	CYCLE	MAINTENANCE MILEAGE	ODOMETER READING (NOTE2)				REFERENCED PAGE
				COMMENT	1000KM	4000KM	8000KM	
*	Fuel Passage			I	I	I		
*	Oil Filter			C	C	C		
*	Air Throttle Operation			I	I	I	36	
	Air Filter	Note 1		C	C	C	49	
	Spark Plug			I	R	I	35	
*	Valve Clearance			I	I	I		
	Engine Oil			R at 1st 500KM - 1000KM and then every 5000KM				34
*	Oil Filter Screen			C	C	C		
*	Engine Idle Speed			I	I	I	38	
*	Drive Chain	Note 3		Per 1000KM: I, L, A				40
	Storage Battery	Note 3		I	I	I	53	
	Wearing of Brake Disc			I	I	I	45	
**	Brake System			I, A	I, A	I, A	I, A	44
	Brake Switch			I	I	I		
	Light Adjustment of Headlamp			I	I	I		
	Clutch Equipment			I	I	I	37	
	Stay Bar			I	I	I		
*	Suspension System			I	I	I		
*	Nut Bolt Fastener	Note 3		I	I	I		
**	Wheel/Wheel Rim	Note 3		I	I	I		
**	Steering Gear			I	I	I		

\* means items must be repaired by qualify technician

\*\* means items that to be repaired by authorised dealers.

**Note:**

1. More inspection and maintenance if riding on the dusty areas.
2. If the odometer reading exceeds this value, repeat the mileages shown in the odometer to continue the inspection.
3. If often driving on bad road conditions such as rough and uneven road surface, frequent maintenance should be given to maintain the good performance of the motorcycle.

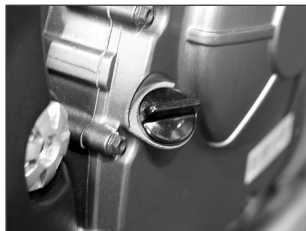


## ENGINE OIL

Please check the engine oil level before starting the engine. When checking the oil level, place the motorcycle on vertical flat ground and use the oil gauge to watch if the oil level is within the scale range. When the oil level is below the lower scale mark, please open the upper oil filler cap and add the oil to the upper scale mark.



Replacing the engine oil when the temperature of the engine is warmed. Fix the frame with the central support bar to ensure the engine oil is drained quickly and completely.



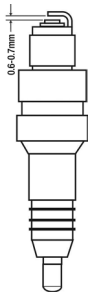


### SPARK PLUG

In the initial 1000km driving and every 4000km interval, use the small metal wire or spark plug cleaner to clear the carbon deposit on it. Use the spark plug gap-measuring plate to readjust the spark plug electrode gap and keep it within 0.6-0.7mm. Replace the spark plug after every 8000km driving.



The spark plug shouldn't be screwed too tight to make the thread damage in case of damaging the thread of cylinder cover. Don't let any other subjects to fall into the engine when disassembling the spark plug.





### **ADJUSTMENT OF ACCELERATOR CABLE WIRE**

1. Check if the throttle manually-operated pull button revolves smoothly from the fully open position to fully closed position.
2. Measure the free play of throttle control pull button at the air throttle manually-operated pull button flange. The standard free play should be  $10^{\circ}\sim 15^{\circ}$ .

Unscrew the locking nut (1) and turn the regulator (2) to adjust the free stroke.





### ADJUSTMENT OF CLUTCH

The free play of the clutch takes the endpoint position of clutch lever as standard before the loosening of clutch, the free play should be 10—20mm. If the free play is improper, please adjust it in accordance with the following procedures:

1. Loose the locking nut
2. Screw in or screw out the adjusting screw, adjusting nut, making the free play of clutch meet with the specified requirement.
3. Screw up the locking nut.





### **ADJUSTMENT OF IDLING SPEED**

The engine should be at normal operation temperature to accurately adjust the idling speed.

1. Place the motorcycle at vertical position and start the engine to heat-up.
2. Use the throttle stop screw to adjust the idling speed to 1400-1600r/min

Turn the adjusting screw clockwise to decrease the rotating speed, while screw the adjusting screw counter clockwise to increase the rotating speed. Please do not over-screw the adjusting screw counter clockwise, otherwise the idling speed will decrease instead and be unstable.

3. Please cut off the engine after adjustment, and restart after three 3 seconds, after two minutes' stable operation, please confirm the idling running again.

Start the engine to warm up it during the idling. After that, close the accelerator and adjust the idling screw knob to keep the rotating speed of engine in the lowest stable level (between 1400-1600r/min). The idling screw is located at the right side of connecting port between throttle valve and air filter.



### **THROTTLE BODY**

The idling speed of the motorcycle will decrease because of the throttle body pollution; please clean the throttle body after each 5000km's driving.

Please disconnect the negative electrode lead connection of battery and disconnect the sensor connector installed on the throttle when cleaning the throttle body; remove the accelerator stay and the hose connected with air filter and intake manifold, then remove the throttle body.

Open the cover at the bottom of throttle body, spray the detergents onto the inner wall of throttle body and brush away the dirt and carbon deposit.

After cleaning, please operate in reverse order to install the throttle body and ensure the proper installation of all parts, then start the engine.



Do not let the impurities block the bypass airway.

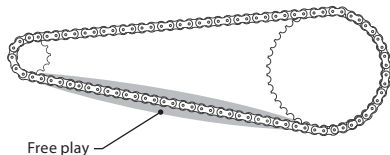


## DRIVE CHAIN

The service life of drive chain depends on the proper lubrication and adjustment. The improper maintenance many cause the abnormal early wear of the drive chain and chain wheel. If under extreme seivior operating conditions, frequent maintenance must be given.

### Adjustment of drive chain:

After each 1000km's driving, please adjust the drive chain and make the chain free play be 10 - 20mm. The chain needs to be adjusted frequently according to your driving conditions.



The recommendation above is the maximum adjustment time interval, actually, the chain should be checked and adjusted before each riding.



Please adjust the chain in accordance with the following procedures:

1. Use the central support to lift up the motorcycle.
2. Loose the rear axle nut.
3. Loose the locking nut.
4. Turn the adjusting bolt to the right or to the left to adjust the tightness of the chain. The front and rear chain wheel should be kept aligned when adjusting the chain. There are reference marks on the swinging arm and each chain adjustor to help you to carry out the adjustment. These reference marks can be aligned mutually and be the reference from one end to the other end. After aligning and adjusting the tightness of chain to 10—20mm, please retighten the rear axle nut to carry out the final check.

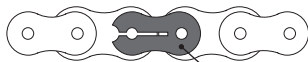




After replacing the new chain, please check if the two chain wheels are worn. Please replace if necessary.



The chain connector is clipped between the open end, please install against the moving direction



Chain Connector



Please check the following conditions of the chain regularly:

1. Loose pin
2. Damaged idler wheel
3. Dried and rusted chain link
4. Knotted or seized chain link
5. Excessive damage
6. Adjustment of loose chain

Please check the following conditions of the chain wheel:

1. Over-worn wheel tooth
2. Broken or damaged wheel tooth
3. Loose chain wheel retaining nut.

#### **Lubrication of Drive Chain**

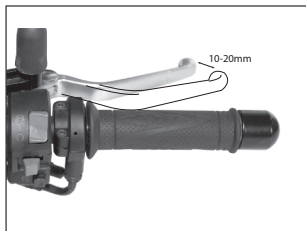
Apply chain lube or soak all the chain links and make the lubricant go through the chain plate, pin, bushing and roller.

## BRAKE

Both the front and rear wheel of the motorcycle is fitted with disc brake. The proper brake operation is very important to the safe driving. Please remember to check the braking system regularly, and this check should be carried out by qualified distributors.

### Adjustment of Brake

- (1) The free play of front brake handle ends should be 10-20mm.
- (2) Measure the moving distance of brake pedal before and after the brake works. The free play should be 20-30mm.

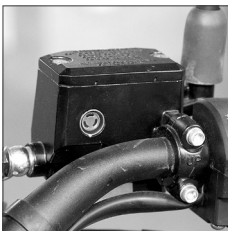


### **Brake Disc**

The essential of checking the front wheel brake disc is to check if the disc is worn to the limit mark. Please replace it with a new brake disc if worn to this mark.

### **Brake fluid**

If the liquid level is lower than the LOWER mark, the recommended brake fluid should be added. Adding brake fluid is one of the important items in regular maintenance.





## Braking system

Please check the following conditions of the braking system every day:

- (1) Check if there is leakage of the front and rear wheel braking system.
- (2) The brake lever and the brake pedal should have a certain amount of support resistance.
- (3) Check the wearing condition of the brake pad. The essential of checking brake pad is to watch if the pad is worn. If exceeds the limit line, the two brake pad should be replaced together.



The motorcycle use DOT3 or DOT4 brake fluid. Take care not to allow brake fluid to get into with paint surface or plastic surface because these surfaces will be corroded.

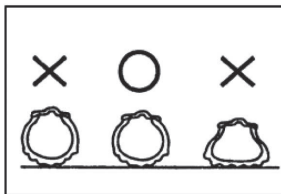


If the braking system or brake disc of your motorcycle needs to be repaired, we recommend that the repair should be carried out by authorised distributors. They are equipped with complete tools and proficient skills, which will ensure the safest and most economic work. After replacing the new wheel brake disc, please pick and place the brake lever several times to fully extend the brake disc and restore the normal support resistance of lever.

## TIRE

The proper tire pressure will ensure the maximum stability, comfortable driving and durability of tire. Please check the tire pressure regularly and adjust it as needed. Please change a new tire when the tread depth of the central tire thread is at the level as below:

MINIMUM THICKNESS OF TIRE TREAD	
FRONT TIRE	1.6mm
REAR TIRE	2.0mm



Please check the tire pressure when the tires are "cold" before driving



Please do not try to repair the damaged tire. The wheel balancing and tire reliability may become worse. The improper tire inflation will cause abnormal tread wearing and threaten the safety. The insufficient tire inflation may cause tire skidding. Driving motorcycle when the tires are over-worn is very dangerous, the over-worn tires are unsuitable for ground adhesion and driving.





### **OIL ACCUMULATION PIPE**

The air filter oil accumulation pipe should be often checked, and discharge the oil if there is some in the oil accumulation pipe.

Discharge approach:

loosen the clamp and move upward take out the drain plug from the pipe, and discharge all the oil stored in the pipe, and then plug in the drain end, and finally loosen the clamp, move downward and clamp the drain end tightly.



### **SERVICING OF AIR FILTER**

The air filter should be maintained regularly, and more frequent service should be given if driven under dusty or sandy areas.

1. Take down the air filter installed on the right front of the motorcycle.
2. Remove the air filter side cover and take out the filter cartridge of air filter.
3. Wash the air filter cartridge in the clean washing oil and make it fully dry.
4. Fully immerse the filter cartridge into the clean gear oil, and then squeeze out the excess oil.
5. Install every part in the reverse order of dismantling.



## CATALYTIC CONVERTER

In order to meet the requirements of environmental emission, the muffler of the motorcycle is equipped with catalytic converter.

The catalytic converter contains precious metals as the catalyst, which will transform the hazardous substances in the tail gas of motorcycle, including carbon monoxide, hydrocarbon and nitrogen oxide etc into non-toxic carbon dioxide, water and nitrogen through chemical reaction.

Since the catalytic converter is very important, the defective catalytic converter will pollute the air and damage the performance of the engine, if the replacement is needed, please use the genuine parts.



The catalytic converter is at high temperature area, please do not touch.

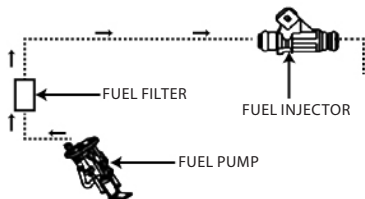
### CANISTER

The motorcycle is equipped with a fuel evaporation control device: canister. The canister is installed under the storage battery cell, the inside of the canister is filled with vapor-absorbing active carbon particles which can effectively prevent the residue fuel vapor evaporating into the air, and be fuel-saving and environment friendly at the same time.

### FUEL INJECTOR AND OIL PASSAGE

There is a port on the fuel pump, and the fuel goes through the fuel filter and reaches fuel injector and finally the fuel will be injected into the inlet air pipe.

The connection method of fuel inlet and fuel return pipe is shown in the graph as below. The port in the upper end of fuel pump is connected to the port in the top of fuel tank.





## LUBRICATION OF PARTS

Appropriate lubrication is quite important to ensure the normal operation of every part in the motorcycle, extend the service life of motorcycle and guarantee the safe driving. We suggest that the lubrication maintenance should be made after long-time riding or cleaning or exposure in the rain. The key points of lubrication maintenance are seen as bellows:

### Lubricating oil for motorcycle: Y , Lubricating Grease: Z

- 1) rear brake pedal shaft: Z
- 2) speedometer flexible: Y
- 3) Speedometer gear and gear shaft bearing: Z,\*
- 4) Kick stand support joint and spring hook: Z
- 5) Gear-shifting pedal lever pin shaft: Z
- 6) Accelerator: Y
- 7) Front brake handle pin shaft: Z
- 8) Clutch handle (pin shaft): Y



The lubricating items marked with "\*" should be operated by the professional technicians from the authorised dealers.



### **STORAGE BATTERY**

When the storage battery is used for the first time, please operate based on the steps below:

Remove the vent gum cap, fill the storage battery electrolyte into the position between upper limit (UPPER) and lower limit (LOWER), stand for 30 minutes and use after the chemical reaction is complete. Please check if the electrolyte level is between the upper limit and lower limit before using. Make sure to use electrolyte provided.

When the new storage battery is used for the first time, it should be initially charged after filling electrolyte. This should be operated by the distributors.

Please connect the wire poles correctly, positive lead (red wire) must be connected to the positive terminal( + ) while negative lead (black wire) to negative terminal( - ), and tighten the terminal bolt. Please use the wire brush to clear away the corrosive substances on the terminal frequently.

The storage battery should be installed steadily and the vent line should be installed properly to ensure the vent line is connected to the vent of storage battery.



### **Please pay attention to the following details**

Please check the electrolyte level of storage battery frequently and keep it next to the (UPPER) mark, which is the perfect position.

Power shortage of storage battery will cause difficult starting, dim lights and harsh sound of horn, under these circumstances, please check the storage battery timely and add electrolyte or charge accordingly.

Frequent starting, short distance driving, long time low-speed driving, frequent braking or installing extra electrical parts will speed up the discharge of storage battery, and increase the load of storage battery, which will cause power shortage and shorten the service life, so please check storage battery frequently and add electrolyte or charge accordingly.



Driving the motorcycle in the case of insufficient storage battery electrolyte will lead to sulfurization and damage the storage battery plate.

Please make sure that the vent pipe is connected to the storage battery vent when checking the storage battery plate and filling distilled water. Please do not squeeze, bend or twist the vent pipe, or place the vent pipe port against the parts so as not to erode the parts.

Only used distilled water to fill the battery, using tap water will shorten the service life of storage battery.

Make sure the liquid level is between the upper limit (UPPER) and lower limit (LOWER).

Please do not knock or upside down the storage battery during dismantling and maintenance.

When installing the storage battery, make sure to correctly connect the lead wire. If the lead wire is inversely connected, the circuitry and battery will be damaged. Red wire must be connected to the positive terminal (+) while black wire to negative terminal(-).

Power switch (key) must be off during check or battery replacement.

### Battery electrolyte:

The storage battery is located inside the storage battery cell below the cushion. The electrolyte level should be kept between the upper level mark(UPPER LEVEL) and lower level mark(LOWER LEVER) on the side of storage battery. If the electrolyte level is lower than the lower level mark(LOWER LEVER), please take down the fluid feeding cap cover and use a small plastic funnel to add the distilled water into the upper level mark (UPPER LEVEL).



Please make sure that the vent pipe is connected to the storage battery vent when checking the storage battery plate and filling distilled water. Please do not bend or twist the vent pipe. Make sure the vent pipe port is facing the ground, not facing the parts, otherwise the storage battery electrolyte may erode the swinging arm and chains.

Only the distilled water can be used, using tap water will shorten the service life of storage battery.





The storage battery will bring about explosive gas, so be cautious of spark and flame.  
The storage battery contains vitriol (electrolyte), and any contact with it in eye or skin might lead to severe burn. The electrolyte is toxic so keep it away from children.

Take down the storage battery to check or to add electrolyte based on the steps as below:

- a. Turn off the motorcycle power switch
- b. Remove the cushion first;
- c. Remove the install screw
- d. Remove the negative terminal ( - ) and remove the positive terminal ( + )
- e. Take out the storage battery gently , Install the storage battery in the reverse order of dismantling



### **Replacement of the Fuse**

Fuse compartment is located near the storage battery. There should be short-circuit or circuit overload if the blowout of fuse happens frequently, Please entrust the Sales Distributor to repair as soon as possible.



Don't use the fuse out of the designated specification, or it will bring serious negative effects to the electric system.

### **Replacement of bulbs**

When replacing the bulbs, the bulbs of the same rated power and specification must be used. If a bulb of different rated power is used, the circuitry may be overloaded and the bulb damaged.



## STORAGE GUIDANCE

Storage:

If the vehicle is to be kept for a long time, certain maintenance measures should be taken to reduce the effect of long-time storage on the quality of the motorcycle.

1. Replace the engine oil.
2. Lubricate the drive chain.
3. To empty the fuel in the fuel tank and the fuel injection unit.



The gasoline will deteriorate if stored in the fuel tank for a long time; the deteriorated fuel will cause difficult starting.



The gasoline is extremely flammable and may explode under certain conditions. Please do not smoke or make spark nearby when draining gasoline.

4. Remove the spark plug and inject one spoon (15-20cm<sup>3</sup>) of clean engine oil into the cylinder, then install the spark plug again.



When the engine runs, the ignition switch should be placed at off position.

5. Remove the storage battery, and keep it in the place free from freezing and direct sunlight
6. Clean and dry the motorcycle. Wax all the painting surfaces.
7. Inflate the tire into recommended tire pressure. Place the motorcycle above cushion block, making the two tires off the ground.
8. Cover the motorcycle (do not use plastic or coating materials) and store it in the place with no heat and moisture and having the minimum temperature variation. Please do not keep the motorcycle in the environment of direct sunlight.

#### **Use after storage**

Take off the covered materials and clean the motorcycle. If the motorcycle is stored for more than 4 months, please replace the engine oil.

Check the storage battery electrolyte level, and charge and install properly as required.

Please carry out the complete pre-driving check. Do the test driving at low speed in the safe area.



## SPECIFICATIONS AND TECHNICAL PARAMETERS

Size	
Length	2120mm
Width	800mm
Height	1100mm
Wheel Base	1480mm
Curb Weight	220kg
Engine	
Style	BJ465MS-A four cylinder, four stroke, water-cooling
Cylinder Bore x Stroke	65.0x45.2mm
Displacement	600ml
Maximum Power	60.0KW/11000r/min
Maximum Torque	55.0N.m/8000r/min
Sparking Mode	CDI
Compression Ratio	11.5
Starting Mode	Electric Starting
Transmission System	
Clutch	wet multiple-disc
Transmission Mode	six-speed, constant mesh
Primary Reduction Ratio	1.864
Final Reduction Ratio	3.286
First Gear Transmission Ratio	2.846
Second Gear Transmission Ratio	1.947
Third Gear Transmission Ratio	1.556
Fourth Gear Transmission Ratio	1.333
Fifth Gear Transmission Ratio	1.190
Sixth Gear Transmission Ratio	1.083

Frame	
Front Shock Absorber	Sleeve, Oil Damping Type
Rear Shock Absorber	Hydraulic Spring Type
Front Braking Type	Manually-Operated Braking
Rear Braking Type	Pedal Braking
Electric System	
Storage battery	12V
Magneto	fly-wheel permanent-magnet
Head lamp	12V 35/35W
Rear lamp/brake lamp	12V LED
Turn signal lamp	12V LED
Fuel injection unit	12V
ECU control unit	12V
Capacity	
Fuel tank (including reserve)	15L
Reserve	1.4L
Engine oil	1.8L
Key Properties	
Maximum design speed	15L
Climbing ability	1.4L
Braking distance	1.8L
Standard fuel consumption	15L
Carrying capacity	1.4L
Rated maximum loading capacity	150kg
Fuel Type	above 90 number fuel
Low beam initial vertical inclined height	540-720mm



**NOTES:**

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